Texas Science

Grade 3

Adopted 2021

The student asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models. The student is expected to: 3.1

- **A.** ask questions and define problems based on observations or information from text, phenomena, models, or investigations; 3.1.A
- **B.** use scientific practices to plan and conduct descriptive investigations and use engineering practices to design solutions to problems; 3.1.B
- **C.** demonstrate safe practices and the use of safety equipment during classroom and field investigations as outlined in Texas Education Agency-approved safety standards; 3.1.C
- **D.** use tools, including hand lenses; metric rulers; Celsius thermometers; wind vanes; rain gauges; graduated cylinders; beakers; digital scales; hot plates; meter sticks; magnets; notebooks; Sun, Earth, Moon system models; timing devices; materials to support observation of habitats of organisms such as terrariums, aquariums, and collecting nets; and materials to support digital data collection such as computers, tablets, and cameras, to observe, measure, test, and analyze information; 3.1.D
- **E.** collect observations and measurements as evidence; 3.1.E
- **F.** construct appropriate graphic organizers to collect data, including tables, bar graphs, line graphs, tree maps, concept maps, Venn diagrams, flow charts or sequence maps, and input-output tables that show cause and effect; and 3.1.F
- **G.** develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem. 3.1.G

The student analyzes and interprets data to derive meaning, identify features and patterns, and discover relationships or correlations to develop evidence-based arguments or evaluate designs. The student is ex

- **A.** identify advantages and limitations of models such as their size, scale, properties, and materials; 3.2.A
- **B.** analyze data by identifying any significant features, patterns, or sources of error; 3.2.B
- **C.** use mathematical calculations to compare patterns and relationships; and 3.2.C
- **D.** evaluate a design or object using criteria. 3.2.D

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The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to: 3.3	**A. develop explanations and propose solutions supported by data and models;** 3.3.A
	B. communicate explanations and solutions individually and collaboratively in a variety of settings and formats; and 3.3.B
	C. listen actively to others' explanations to identify relevant evidence and engage respectfully in scientific discussion. 3.3.C
The student knows the contributions of scientists and recognizes the importance of scientific research and innovation for society. The student is expected to: 3.4	**A. explain how scientific discoveries and innovative solutions to problems impact science and society; and** 3.4.A
	B. research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field to investigate STEM careers. 3.4.B
The student understands that recurring themes and concepts provide a framework for making connections across disciplines. The student is expected to: 3.5	**A. identify and use patterns to explain scientific phenomena or to design solutions;** 3.5.A
	B. identify and investigate cause-and-effect relationships to explain scientific phenomena or analyze problems; 3.5.B
	C. use scale, proportion, and quantity to describe, compare, or model different systems; 3.5.C
	D. examine and model the parts of a system and their interdependence in the function of the system; 3.5.D
	E. investigate the flow of energy and cycling of matter through systems; 3.5.E
	F. explain the relationship between the structure and function of objects, organisms, and systems; and 3.5.F
	G. explain how factors or conditions impact stability and change in objects, organisms, and systems. 3.5.G
The student knows that matter has measurable physical properties that determine how matter is identified, classified, changed, and used. The student is expected to: 3.6	**A. measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float in water;** 3.6.A
	B. describe and classify samples of matter as solids, liquids, and gases and demonstrate that solids have a definite shape and that liquids and gases take the shape of their container; 3.6.B
	C. predict, observe, and record changes in the state of matter caused by heating or cooling in a variety of substances such as ice becoming liquid water, condensation forming on the outside of a glass, or liquid water being heated to the point of becoming water vapor (gas); and 3.6.C

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	D. demonstrate that materials can be combined based on their physical properties to create or modify objects such as building a tower or adding clay to sand to make a stronger brick and justify the selection of materials based on their physical properties. 3.6.D
The student knows the nature of forces and the patterns of their interactions. The student is expected to: 3.7	**A.** demonstrate and describe forces acting on an object in contact or at a distance, including magnetism, gravity, and pushes and pulls; and 3.7.A
	B. plan and conduct a descriptive investigation to demonstrate and explain how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons. 3.7.B
The student knows that energy is everywhere and can be observed in cycles, patterns, and systems. The student is expected to: 3.8	**A.** identify everyday examples of energy, including light, sound, thermal, and mechanical; and 3.8.A
	B. plan and conduct investigations that demonstrate how the speed of an object is related to its mechanical energy. 3.8.B
The student knows there are recognizable objects and patterns in Earth's solar system. The student is expected to: 3.9	**A.** construct models and explain the orbits of the Sun, Earth, and Moon in relation to each other; and 3.9.A
	B. identify the order of the planets in Earth's solar system in relation to the Sun. 3.9.B
The student knows that there are recognizable processes that change Earth over time. The student is expected to: 3.10	**A.** compare and describe day-to-day weather in different locations at the same time, including air temperature, wind direction, and precipitation; 3.10.A
	B. investigate and explain how soils such as sand and clay are formed by weathering of rock and by decomposition of plant and animal remains; and 3.10.B
	C. model and describe rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides. 3.10.C
The student understands how natural resources are important and can be managed. The student is expected to: 3.11	**A.** explore and explain how humans use natural resources such as in construction, in agriculture, in transportation, and to make products; 3.11.A
	B. explain why the conservation of natural resources is important; and 3.11.B
	C. identify ways to conserve natural resources through reducing, reusing, or recycling. 3.11.C
The student describes pa[illegible] sy[illegible] rel	**A.** explain how temperature and precipitation affect animal growth and behavior through migration and hibernation and plant responses through dormancy; 3.12.A

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environments. The student is expected to: 3.12	**B.** identify and describe the flow of energy in a food chain and predict how changes in a food chain such as removal of frogs from a pond or bees from a field affect the ecosystem; 3.12.B
	C. describe how natural changes to the environment such as floods and droughts cause some organisms to thrive and others to perish or move to new locations; and 3.12.C
	D. identify fossils as evidence of past living organisms and environments, including common Texas fossils. 3.12.D
The student knows that organisms undergo similar life processes and have structures that function to help them survive within their environments. The student is expected to: 3.13	**A.** explore and explain how external structures and functions of animals such as the neck of a giraffe or webbed feet on a duck enable them to survive in their environment; and 3.13.A
	B. explore, illustrate, and compare life cycles in organisms such as beetles, crickets, radishes, or lima beans. 3.13.B